

Exhibit 4

CORNERSTONE RESEARCH

Economic and Financial Consulting and Expert Testimony

Securities Class Action Settlements

2019 Review and Analysis

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The views expressed in this report are solely those of the authors, who are responsible for the content, and do not necessarily represent the views of Cornerstone Research.

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Analyses in this report are based on 1,849 securities class actions filed after passage of the Private Securities Litigation Reform Act of 1995 (Reform Act) and settled from 1996 through year-end 2019. See page 17 for a detailed description of the research sample. For purposes of this report and related research, a settlement refers to a negotiated agreement between the parties to a securities class action that is publicly announced to potential class members by means of a settlement notice.

Highlights

Historically high median settlement amounts persisted in 2019, driven primarily by an increase in the overall percentage of mid-sized cases in the \$5 million to \$25 million range as well as a decrease in the number of smaller settlements.

- There were 74 settlements totaling \$2 billion in 2019. [\(page 3\)](#)
- The median settlement in 2019 of \$11.5 million was unchanged from 2018 (adjusted for inflation) and was 34 percent higher than the prior nine-year median. [\(page 3\)](#)
- The average settlement amount in 2019 was \$27.4 million, which was 43 percent lower than the prior nine-year average. [\(page 4\)](#)
- There were four mega settlements (settlements equal to or greater than \$100 million) in 2019. [\(page 20\)](#)
- The number of small settlements (amounts less than \$5 million) declined by 36 percent to 16 cases in 2019, the fewest such settlements in the past decade. [\(page 4\)](#)
- The proportion of settlements in 2019 with a public pension plan as lead plaintiff reached its lowest level in the prior 10 years. [\(page 12\)](#)
- In 2019, 53 percent of settled cases involved an accompanying derivative action, the second-highest rate over the past decade. [\(page 10\)](#)
- Companies that settled cases after a ruling on a motion to dismiss (MTD) were, on average, 50 percent larger (measured by total assets) than companies that settled while the MTD was pending. [\(page 14\)](#)

Figure 1: Settlement Statistics

(Dollars in millions)

	1996–2018	2018	2019
Number of Settlements	1,775	78	74
Total Amount	\$103,955.3	\$5,156.0	\$2,029.9
Minimum	\$0.2	\$0.4	\$0.5
Median	\$8.8	\$11.5	\$11.5
Average	\$58.6	\$66.1	\$27.4
Maximum	\$9,172.1	\$3,054.4	\$389.6

Note: Settlement dollars are adjusted for inflation; 2019 dollar equivalent figures are used. Figure 1 includes all post-Reform Act settlements. Settlements in prior years have included 14 cases exceeding \$1 billion. Adjusted for inflation, these settlements drive up the average settlement amount.

Author Commentary

2019 Findings

The size of issuer defendant firms (measured by total assets) continued to grow in 2019, increasing by 59 percent over 2018 and 117 percent above the median over the last 10 years. This may be due at least in part to prolonged changes in the population of public companies. In particular, as has been widely observed, the number of publicly traded firms continued to decline in recent years—with the result that remaining public firms are larger.¹

As discussed by other commentators, large issuer defendants may cause plaintiff counsel to pursue potential claims more vigorously.² As in our prior research, we examine the number of docket entries as a proxy for the time and effort by plaintiff counsel and/or case complexity. In 2019, average docket entries were the highest in the last 10 years, primarily driven by cases with relatively large damages, as measured by our simplified proxy for plaintiff-style damages (i.e., “simplified tiered damages” exceeding \$500 million).

Overall, our simplified proxy for plaintiff-style damages remained at elevated levels in 2019 compared to earlier years in the decade, in part reflecting the relatively high market capitalization losses associated with cases filed over the last three years.³

Another driver of higher plaintiff-style damages is class period length. Indeed, plaintiffs often amend their initial complaints to capture longer alleged class periods. In 2019, the median class period length per the operative complaint as of the time of settlement was 1.7 years—the longest over the last 10 years. In comparison, the median class period alleged in first identified complaints during 2015–2018 (the period during which most of the 2019 settlements were filed) was just under one year. This indicates that between the time of filing and settlement plaintiffs substantially expanded the period over which they claim the alleged fraud occurred.

Despite the large size of cases settled in 2019, public pension plans served as lead plaintiffs less frequently, with their involvement reaching the lowest level over the last 10 years. Prior literature has discussed possible reasons for institutions choosing not to serve as lead plaintiffs, including an imbalance in the cost/benefit of doing so.⁴

One finding that is particularly striking is the decrease in public pension plan lead plaintiffs despite an increase in larger issuer firms with potentially sizable damages exposure.

Dr. Laura E. Simmons
Senior Advisor
Cornerstone Research

Other contributors to the reduction in public pension plan involvement may include changes in the mix of plaintiff law firms serving as lead counsel, and possibly the recent increase in the propensity of plaintiffs to opt out of class actions, including in larger cases (see *Opt-Out Cases in Securities Class Action Settlements: 2014–2018 Update*, Cornerstone Research).

Looking Ahead

Recent trends in securities case filings can inform expectations for developments in settlements in upcoming years.

The number of filings alleging Rule 10b-5 and/or Section 11 claims reached record levels in 2019. In addition, for the second year in a row, median Disclosure Dollar Loss (DDL) for case filings reached unusually high levels (see *Securities Class Action Filings—2019 Year in Review*, Cornerstone Research).

Absent changes in dismissal rates, these results suggest that the volume of securities case settlements, as well as their value, is likely to continue at relatively high levels in upcoming years.

—Laarni T. Bulan and Laura E. Simmons

Total Settlement Dollars

- The total value of settlements approved by courts in 2019 declined dramatically from 2018 due to the absence of very large settlements. Excluding 2018 settlements over \$1 billion, however, total settlement dollars declined by a modest 3 percent in 2019 (adjusted for inflation).
- The median settlement amount in 2019 of \$11.5 million was unchanged from the prior year (adjusted for inflation).
- Compared to the prior nine years, larger median settlement amounts in 2019 were accompanied by higher levels in the proxy for plaintiff-style damages. (See page 5 for a discussion of damages estimates.)

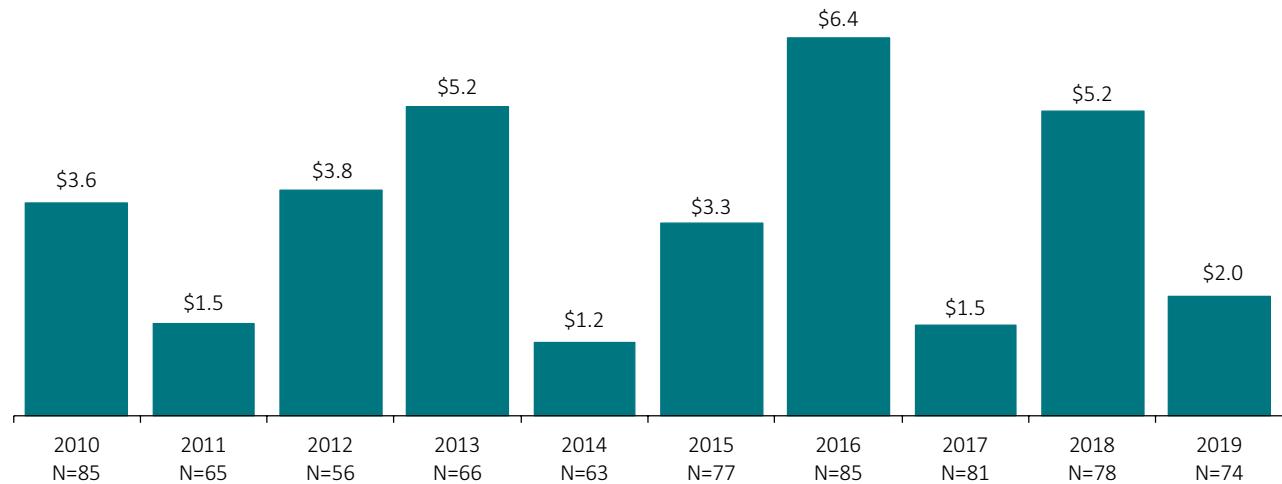
The median settlement amount in 2019 was 34 percent higher than the prior nine-year median.

- Mediators continue to play a central role in the resolution of securities class action settlements. In 2019, nearly all cases in the sample involved a mediator.

Figure 2: Total Settlement Dollars

2010–2019

(Dollars in billions)



Note: Settlement dollars are adjusted for inflation; 2019 dollar equivalent figures are used. N refers to the number of observations.

Settlement Size

As discussed above, the median settlement amount was unchanged from 2018. Generally, the median is more stable from year to year than the average, since the average can be affected by the presence of even a small number of large settlements.

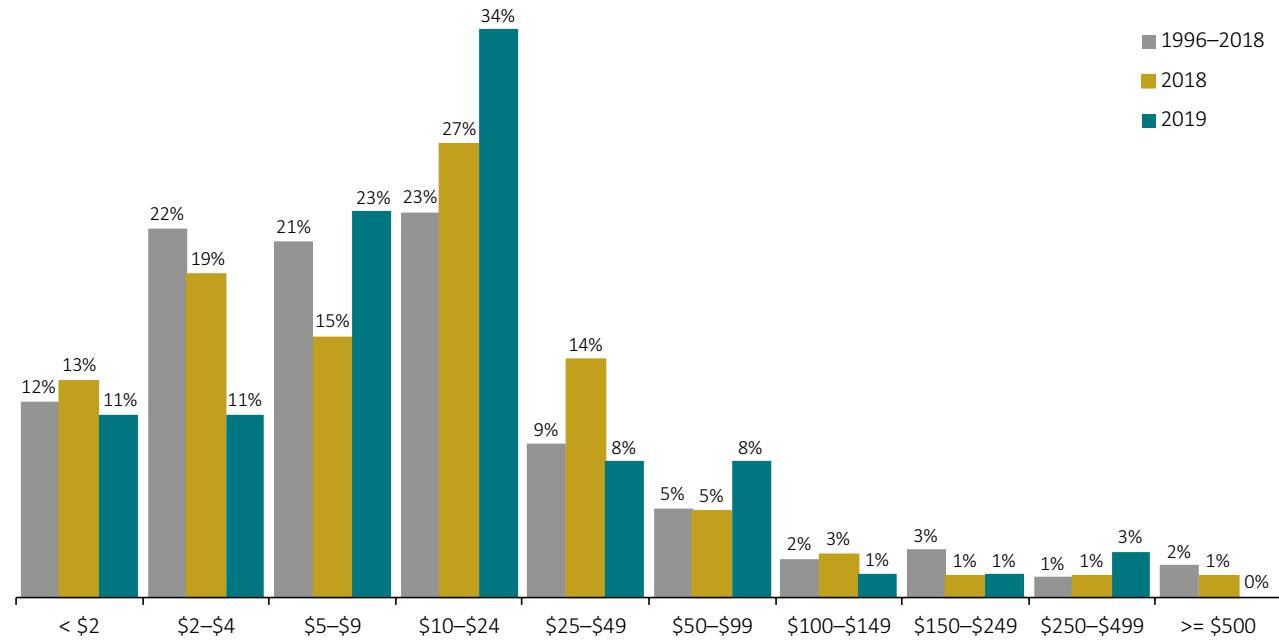
- The average settlement amount in 2019 was \$27.4 million, 43 percent lower than the average over the prior nine years. (See Appendix 1 for an analysis of settlements by percentiles.)
- If settlements exceeding \$1 billion are excluded from the prior nine-year average, the decline in 2019 was 16 percent.
- There were four mega settlements (equal to or greater than \$100 million) in 2019, with settlements ranging from \$110 million to \$389.6 million. (See Appendix 4 for additional information on mega settlements.)

- Despite a decline in the average settlement amount from 2018, the number of small settlements (less than \$5 million) also declined by 36 percent to 16 cases in 2019, the fewest such settlements in the past decade. Cases that result in settlement funds less than \$5 million may be viewed as “nuisance” suits, a shift upwards from a threshold of \$2 million prevalent in early post-Reform Act years.⁵

57 percent of cases settled for between \$5 million and \$25 million.

Figure 3: Distribution of Post-Reform Act Settlements 1996–2019

(Dollars in millions)



Note: Settlement dollars are adjusted for inflation; 2019 dollar equivalent figures are used. Percentages may not sum to 100 percent due to rounding.

Damages Estimates

Rule 10b-5 Claims: “Simplified Tiered Damages”

“Simplified tiered damages” uses simplifying assumptions to estimate per-share damages and trading behavior. It provides a measure of potential shareholder losses that allows for consistency across a large volume of cases, thus enabling the identification and analysis of potential trends.⁶

Cornerstone Research’s prediction model finds this measure to be the most important factor in predicting settlement amounts.⁷ However, this measure is not intended to represent actual economic losses borne by shareholders. Determining any such losses for a given case requires more in-depth economic analysis.

- Median “simplified tiered damages” was largely unchanged from the prior year. (See Appendix 5 for additional information on the median and average settlements as a percentage of “simplified tiered damages.”)

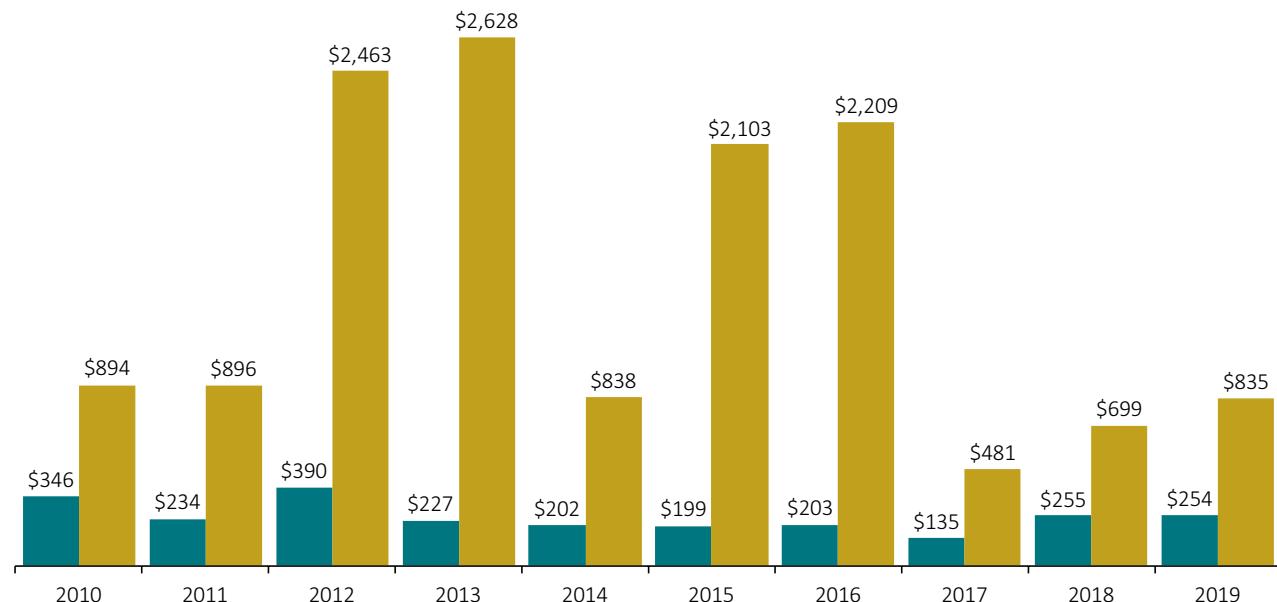
While median “simplified tiered damages” remained largely unchanged in 2019, average “simplified tiered damages” increased for the third year in a row.

- “Simplified tiered damages” is generally correlated with the length of the class period. Among cases with Rule 10b-5 claims, the median class period length in 2019 was at its highest level in the last 10 years.
- “Simplified tiered damages” is also typically correlated with larger issuer defendants (measured by total assets or market capitalization of the issuer). However, despite the lack of change in median “simplified tiered damages” compared to 2018, median total assets of issuer defendants increased by over 67 percent in 2019.

Figure 4: Median and Average “Simplified Tiered Damages” in Rule 10b-5 Cases 2010–2019

(Dollars in millions)

■ Median “Simplified Tiered Damages”
■ Average “Simplified Tiered Damages”



Note: “Simplified tiered damages” are adjusted for inflation based on class period end dates. Damages are estimated for cases alleging a claim under Rule 10b-5 (whether alone or in addition to other claims).

Damages Estimates (continued)

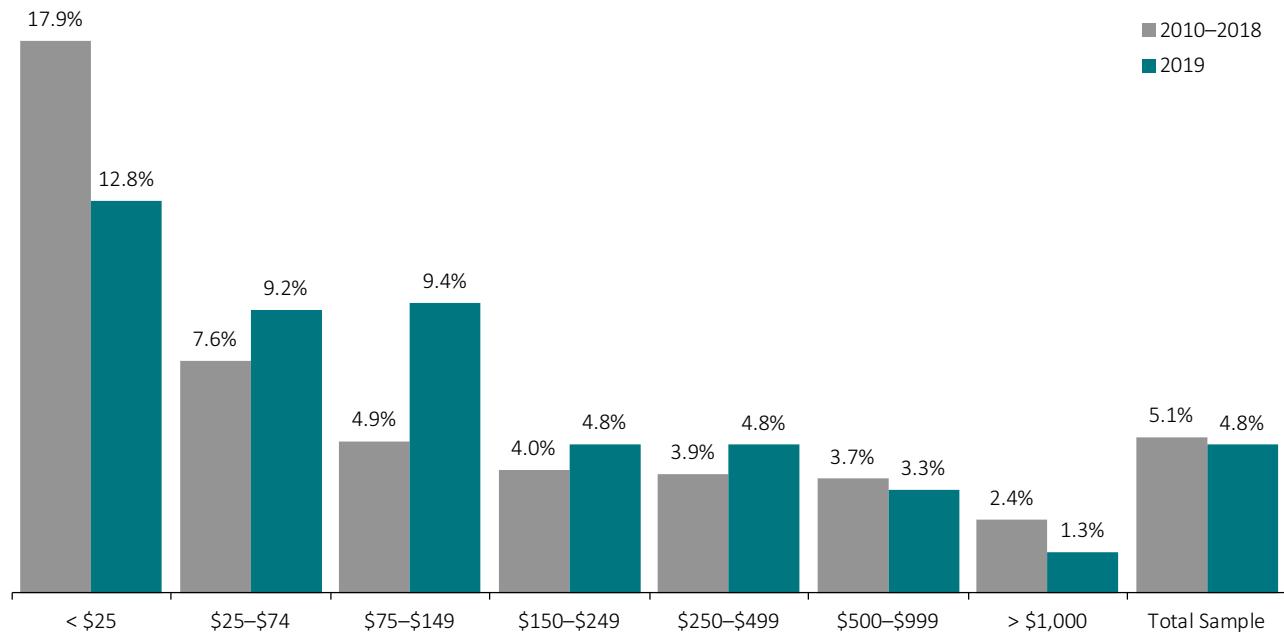
- Larger cases, as measured by “simplified tiered damages,” typically settle for a smaller percentage of damages.
- Smaller cases (less than \$25 million in “simplified tiered damages”) are less likely to include factors such as institutional lead plaintiffs and/or related actions by the Securities and Exchange Commission (SEC) or criminal charges.
- Among cases in the sample, smaller cases typically settle more quickly. In 2019, cases with less than \$25 million in “simplified tiered damages” settled within 2.0 years on average, compared to 3.5 years for cases with “simplified tiered damages” greater than \$500 million.

At 9.4 percent in 2019, median settlements as a percentage of “simplified tiered damages” for mid-sized cases reached a five-year high.

- The steadily increasing median settlement as a percentage of “simplified tiered damages” observed from 2016 to 2018 reversed in 2019. Appendix 5 shows a substantial increase in 2019 in average settlements as a percentage of “simplified tiered damages.” However, this result is driven by a few outlier cases. Excluding these cases, the average percentage for 2019 is not unusual compared to recent years.

Figure 5: Median Settlements as a Percentage of “Simplified Tiered Damages” by Damages Ranges in Rule 10b-5 Cases 2010–2019

(Dollars in millions)



Note: Damages are estimated for cases alleging a claim under Rule 10b-5 (whether alone or in addition to other claims).

Damages Estimates (continued)

'33 Act Claims: "Simplified Statutory Damages"

For cases involving only Section 11 and/or Section 12(a)(2) claims ('33 Act claims), shareholder losses are estimated using a model in which the statutory loss is the difference between the statutory purchase price and the statutory sales price, referred to here as "simplified statutory damages."⁸ Only the offered shares are assumed to be eligible for damages.

"Simplified statutory damages" are typically smaller than "simplified tiered damages," reflecting differences in the methodologies used to estimate alleged inflation per share, as well as differences in the shares eligible to be damaged (i.e., only offered shares are included).

Median "simplified statutory damages" for '33 Act claim cases in 2019 was more than 65 percent higher than the prior five-year median.

- Cases with only '33 Act claims tend to settle for smaller median amounts than cases that include Rule 10b-5 claims.
- In 2019, among settlements involving '33 Act claims only, the median time to settlement was only slightly longer than cases involving Rule 10b-5 claims only, 3.2 years and 2.9 years, respectively. When compared to the prior year, however, '33 Act claim cases took more than 36 percent longer to resolve in 2019 (3.2 years compared to 2.3 years).

Figure 6: Settlements by Nature of Claims

2010–2019

(Dollars in millions)

	Number of Settlements	Median Settlement	Median "Simplified Statutory Damages"	Median Settlement as a Percentage of "Simplified Statutory Damages"
Section 11 and/or Section 12(a)(2) Only	77	\$7.2	\$118.8	7.4%

	Number of Settlements	Median Settlement	Median "Simplified Tiered Damages"	Median Settlement as a Percentage of "Simplified Tiered Damages"
Both Rule 10b-5 and Section 11 and/or Section 12(a)(2)	115	\$15.1	\$390.0	5.8%
Rule 10b-5 Only	524	\$8.5	\$212.5	4.6%

Note: Settlement dollars and damages are adjusted for inflation; 2019 dollar equivalent figures are used. Damages are adjusted for inflation based on class period end dates.

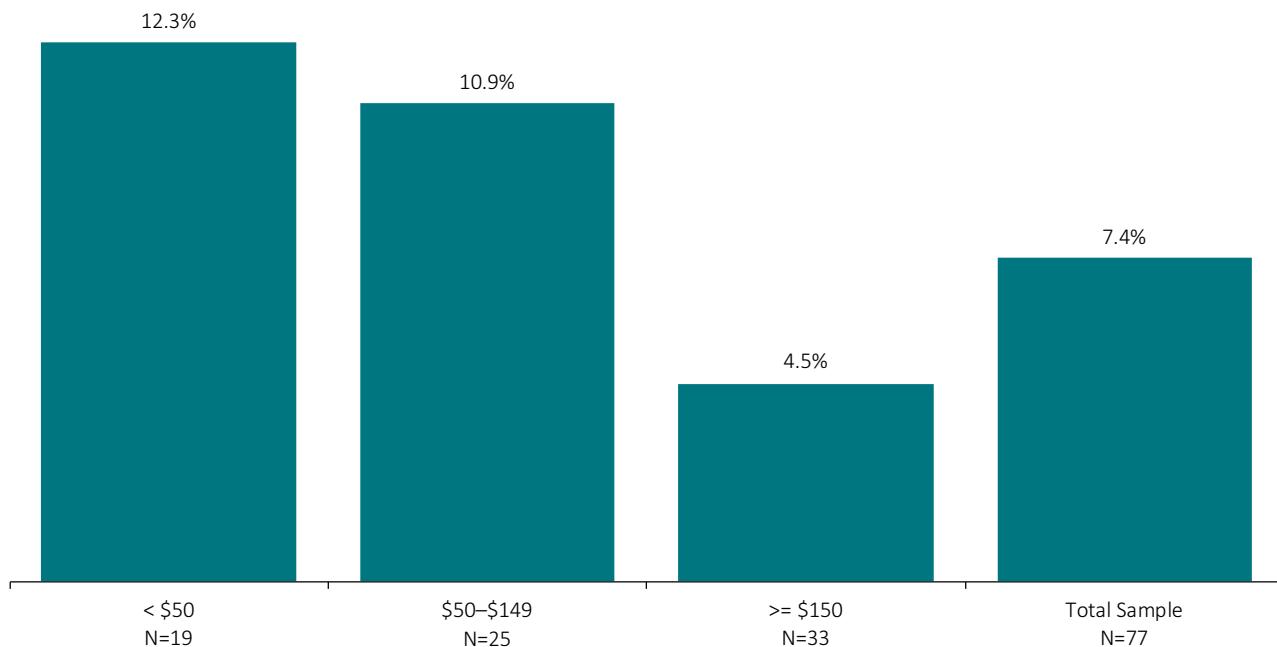
Damages Estimates (continued)

- Settlements as a percentage of “simplified statutory damages” are smaller for cases that have larger estimated damages. This finding holds for cases with ‘33 Act claims only, as well as those with Rule 10b-5 claims.

90 percent of cases with only ‘33 Act claims involved an underwriter as a codefendant.

- Over the period 2010–2019, the median size of issuer defendants (measured by total assets) was 68 percent smaller for cases with only ‘33 Act claims relative to those that included Rule 10b-5 claims.
- The smaller size of issuer defendants in ‘33 Act cases is consistent with the vast majority of these cases involving initial public offerings (IPOs). From 2010 through 2019, 83 percent of all cases with only ‘33 Act claims have involved IPOs.

Figure 7: Median Settlements as a Percentage of “Simplified Statutory Damages” by Damages Ranges in ‘33 Act Cases 2010–2019
(Dollars in millions)



Note: N refers to the number of observations.

Analysis of Settlement Characteristics

Accounting Allegations

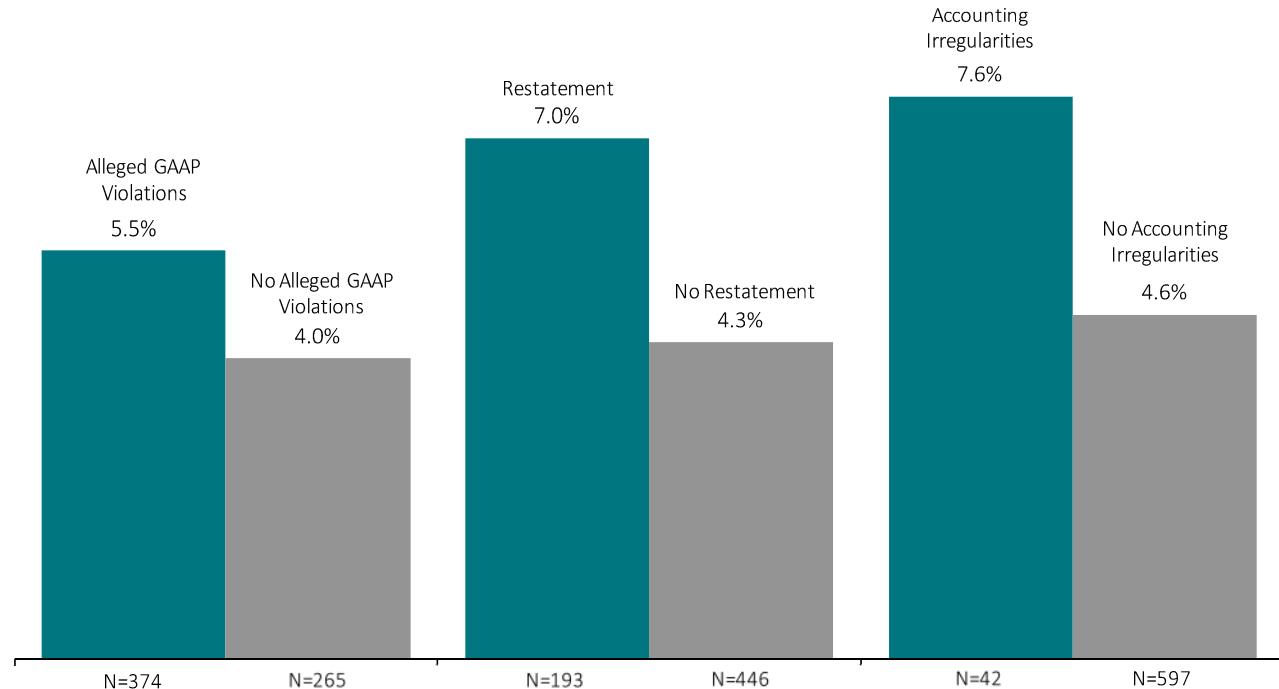
This analysis examines accounting allegations related to issues among securities class actions involving Rule 10b-5 claims: alleged Generally Accepted Accounting Principles (GAAP) violations, violations of other reporting standards, auditing violations, or weaknesses in internal controls over financial reporting.⁹ For further details regarding settlements of accounting cases, see Cornerstone Research's annual report on *Accounting Class Action Filings and Settlements*.¹⁰

- The proportion of settled cases alleging GAAP violations in 2019 was 44 percent, continuing a five-year decline from a high of 67 percent in 2014.
- Settled cases with restatements are generally associated with higher settlements as a percentage of “simplified tiered damages” compared to cases without restatements. In 2019, the median settlement as a percentage of “simplified tiered damages” for cases with restatements was 5.2 percent, compared to 4.1 percent for cases without restatements.

- Among cases settled in 2019 with accounting-related allegations, only 6 percent involved a named auditor defendant. This was the lowest rate in the past decade and a decline from a high of 24 percent in 2015.
- The proportion of cases with accounting-related allegations that also involved associated criminal charges was 27 percent in 2019, well above the rate of 11 percent among cases settled during 2010–2018.

The frequency of reported accounting irregularities increased among settled cases in 2019 to 9 percent, compared to an average of less than 2 percent from 2015 to 2018.

Figure 8: Median Settlements as a Percentage of “Simplified Tiered Damages” and Accounting Allegations 2010–2019



Note: N refers to the number of observations.

Derivative Actions

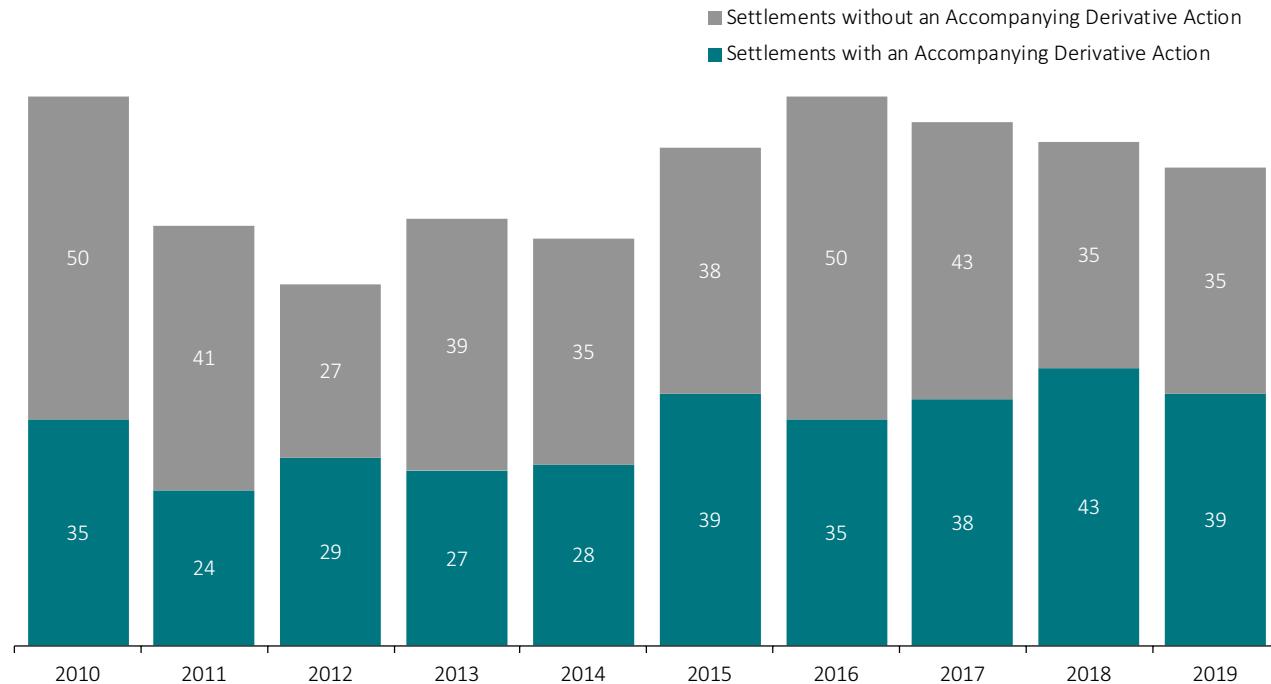
While settled cases involving an accompanying derivative action are typically associated with both larger cases (measured by “simplified tiered damages”) and larger settlement amounts, this was not true in 2019.

- The median settlement among cases with an accompanying derivative action was \$10 million compared to \$14.8 million for cases without a derivative action.
- This may be due at least in part to a substantial increase in derivative actions involving smaller issuers. In 2019, 70 percent of cases involving issuers with less than \$250 million in total assets also had an accompanying derivative action, compared to only 46 percent over the prior nine years.

53 percent of settled cases involved an accompanying derivative action, the second-highest rate over the last 10 years.

- Many larger settlements in 2019 involved non-U.S. issuers (44 percent of settlements above \$25 million), which have been associated with derivative actions far less frequently than cases involving U.S. issuers. During 2010–2019, only 22 percent of cases involving non-U.S. issuers had accompanying derivative actions.
- In 2019, 36 percent of derivative actions were filed in Delaware, the highest proportion in the past decade. The second most common filing state for derivative suits was California.

Figure 9: Frequency of Derivative Actions
2010–2019



Corresponding SEC Actions

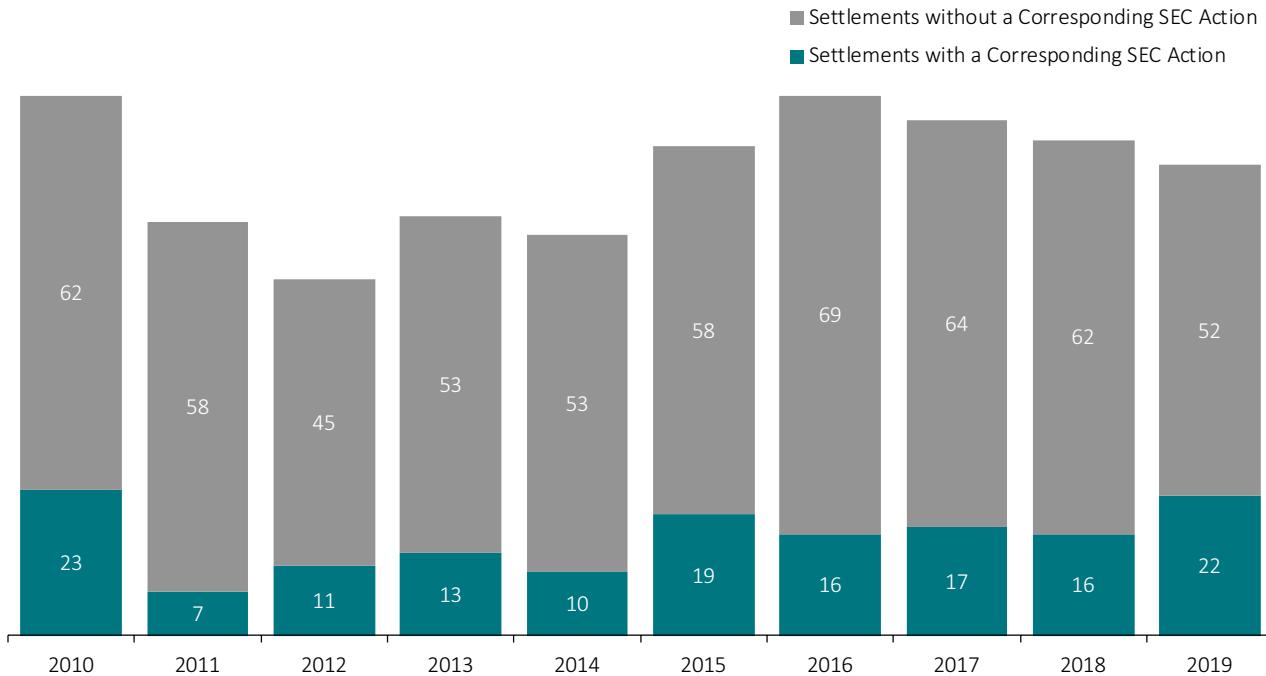
Cases with an SEC action related to the allegations are typically associated with significantly higher settlement amounts and higher settlements as a percentage of "simplified tiered damages."¹¹

- In 2019, the median total assets of issuer defendant firms at the time of settlement was \$1.3 billion for cases with corresponding SEC actions compared to \$1.5 billion for cases without a corresponding SEC action. This was consistent with the overall increase in the asset size of issuers.
- For cases settled during 2015–2019, 42 percent of cases with a corresponding SEC action involved issuer defendants that had either declared bankruptcy or were delisted from a major U.S. exchange prior to settlement.

- Cases with corresponding SEC actions have involved accounting-related allegations less frequently in recent years. From 2010 to 2016, 88 percent of settled cases involved accounting-related allegations, compared to 75 percent from 2017 to 2019.
- Cases involving corresponding SEC actions may also include allegations of criminal activity in connection with the time period covered by the underlying class action. In 2019, more than 40 percent of cases with an SEC action had related criminal charges.

30 percent of settled cases involved a corresponding SEC action, the highest rate over the last 10 years.

Figure 10: Frequency of SEC Actions
2010–2019



Analysis of Settlement Characteristics (continued)

Institutional Investors

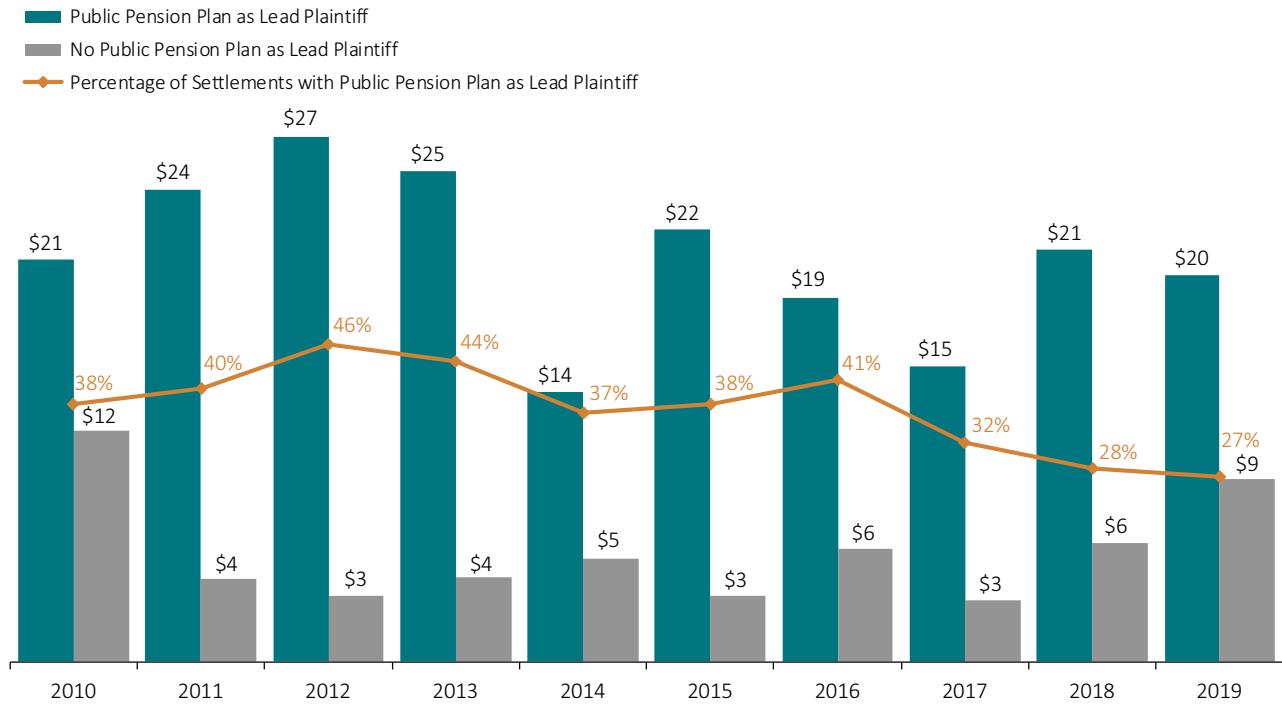
- Institutional investors, including public pension plans (a subset of institutional investors), tend to be involved in larger cases, that is, cases with higher “simplified tiered damages.”
- Median “simplified tiered damages” for cases involving a public pension as a lead plaintiff in 2019 were more than three times higher than for cases without a public pension plan as a lead plaintiff.
- In 2019, median market capitalization (measured prior to the settlement hearing date) for issuer defendants in cases involving an institutional investor as a lead plaintiff was \$1.6 billion compared to \$459.4 million for cases without institutional investor involvement.

The proportion of settlements with a public pension plan as lead plaintiff reached its lowest level in the decade.

- Over the last 10 years, institutional investor lead plaintiffs have also been associated with lower attorney fees in relation to “simplified tiered damages.” This may reflect their tendency to be involved in larger cases, in which attorney fees often represent a smaller percentage of the total settlement fund, as well as their potential ability to negotiate lower fees.¹²
- Among 2019 settled cases that do have an institutional investor as a lead plaintiff, 50 percent involved a parallel derivative action and 22 percent involved a corresponding SEC action.

Figure 11: Median Settlement Amounts and Public Pension Plans
2010–2019

(Dollars in millions)



Note: Settlement dollars are adjusted for inflation; 2019 dollar equivalent figures are used.

Time to Settlement and Case Complexity

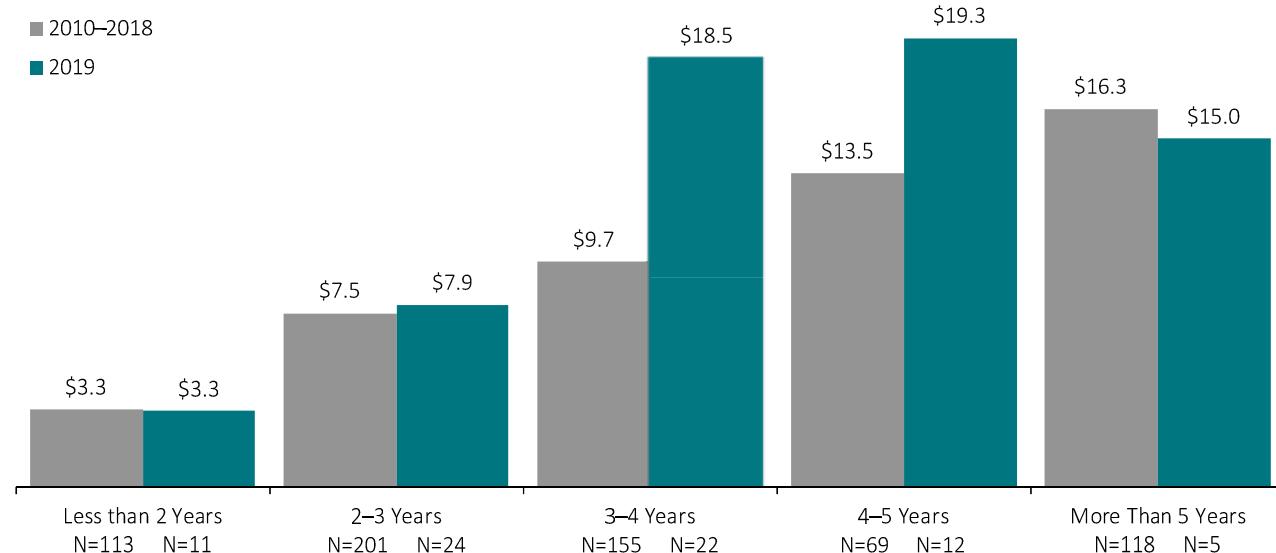
- In 2019, 15 percent of cases settled within two years of filing, consistent with the rate over the last 10 years. The average time from filing to settlement in 2019 was 3.3 years.
- Compared to cases that settled more quickly, cases that required three to five years to settle in 2019 had a higher frequency of factors such as a public pension as a lead plaintiff and/or the presence of a corresponding SEC action.
- Only 7 percent of cases in 2019 took more than five years to settle, the lowest rate in the past decade. Of these, 80 percent involved institutional investors. The median assets of the defendant firms in these cases were also substantially higher at \$68 billion, compared to a median of \$1.2 billion in other cases.
- In 2019, cases that took more than five years to settle had a lower median settlement amount than cases that took three to five years to settle. This is despite the higher median “simplified tiered damages” of \$602 million for cases that took more than five years to settle, compared to \$375 million for cases that took three to five years to settle.

Median “simplified tiered damages” for Rule 10b-5 cases settling in less than two years were substantially smaller compared to settlements that took longer to resolve.

- The number of docket entries as of the settlement may reflect case complexity. This factor has also been used in prior research as a proxy for attorney effort.¹³ The number of docket entries is highly correlated with the duration from filing to settlement hearing date, issuer size, criminal allegations, accounting allegations, as well as the size of “simplified tiered damages.” Median docket entries for cases settled in 2019 were largely unchanged from prior years, but the average number of docket entries reached its highest level in the past decade.

Figure 12: Median Settlement by Duration from Filing Date to Settlement Hearing Date 2010–2019

(Dollars in millions)



Note: Settlement dollars are adjusted for inflation; 2019 dollar equivalent figures are used. N refers to the number of observations.

Case Stage at the Time of Settlement

In collaboration with Stanford Securities Litigation Analytics (SSL),¹⁴ this report analyzes settlements in relation to the stage in the litigation process at the time of settlement.

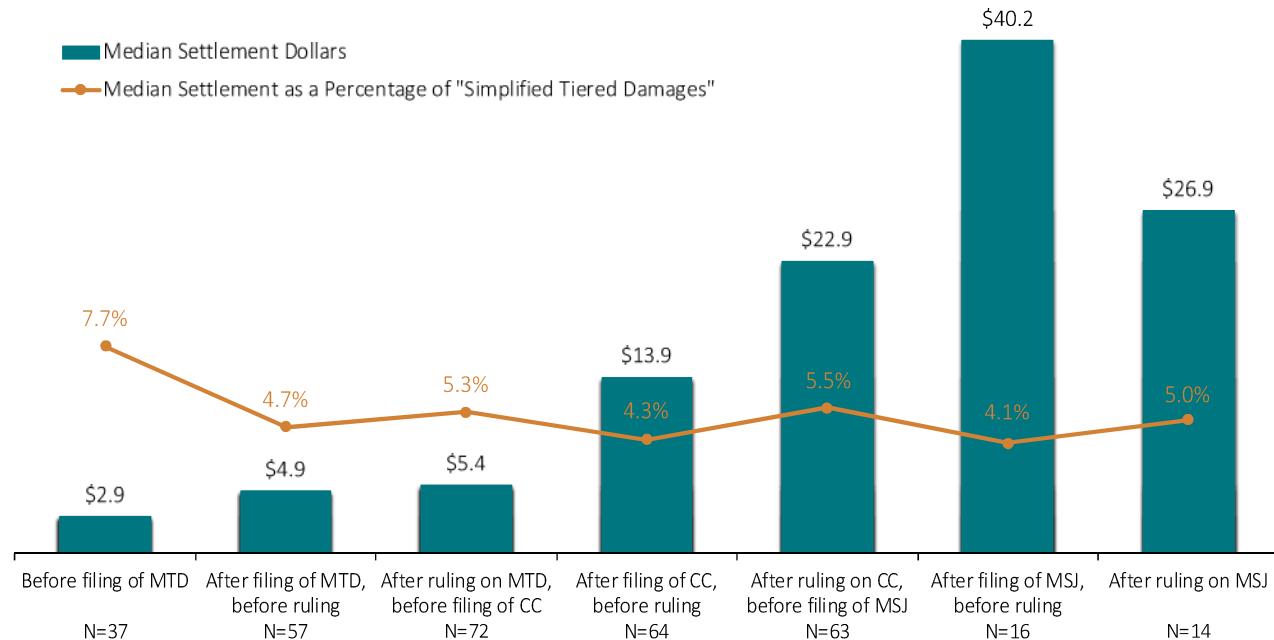
- In 2019, cases settled after a motion to dismiss (MTD) was filed but prior to a ruling on the MTD had a median settlement of \$8.5 million, significantly lower than for cases settled at later stages.
- In addition, among 2019 settlements, median total assets of issuer defendants at the time of settlement were almost 50 percent larger for cases settled following a ruling on a MTD than for cases where the MTD was pending at the time of settlement.

The average time to reach a ruling on a motion for class certification among settlements was 2.3 years.

- In the five-year period from 2015 to 2019, median “simplified tiered damages” for cases settled after a filing of a motion for summary judgment (MSJ) was over four times the median for cases settled before a MSJ filing. This contributed to higher settlement amounts but lower settlements as a percentage of “simplified tiered damages” for cases settled at this stage.

Figure 13: Median Settlement Dollars and Resolution Stage at Time of Settlement 2015–2019

(Dollars in millions)



Note: Settlement dollars are adjusted for inflation; 2019 dollar equivalent figures are used. MTD refers to “motion to dismiss,” CC refers to “class certification,” and MSJ refers to “motion for summary judgment.” This analysis is limited to cases alleging Rule 10b-5 claims.

Spotlight: Settlements in the Pharmaceutical Industry

Cases with issuer defendants in the pharmaceutical industry, as defined by their SIC code (pharma cases), reached an all-time high in 2019, both in the absolute number and percentage of cases. While in prior years pharma cases tended to involve relatively large “simplified tiered damages,” in 2019, the median was \$163 million—36 percent lower than the median for all cases in 2019. Settlements for cases in this sector have a number of characteristics that differ from the overall sample, including several of those that are important determinants of settlement outcomes. (See Appendix 2 for additional information on settlements by industry.)

- Pharma cases are less likely to have a public pension acting as a lead plaintiff. From 2010 to 2019, only 22 percent of pharma cases had a public pension as lead plaintiff compared to 39 percent for non-pharma cases.
- Violations of GAAP are also less likely among pharma cases than non-pharma cases. From 2010 to 2019, only 19 percent of pharma cases alleged violations of GAAP compared to 62 percent of non-pharma cases.
- Restatements of financials were also less common among pharma cases—14 percent—compared to 30 percent in non-pharma cases from 2010 to 2019.
- Pharma cases are less likely to involve ’33 Act claims related to an offering. During 2010–2019, only 17 percent of pharma cases involved ’33 Act claims, whereas such claims were alleged in 28 percent of non-pharma cases.

Figure 14: Settlements in the Pharmaceutical Industry 2010–2019



These differences explain, in part, why pharma cases with Rule 10b-5 allegations tend to settle for smaller percentages of “simplified tiered damages.” The median settlement as a percentage of “simplified tiered damages” for pharma cases over the past 10 years is 3.7 percent while for non-pharma cases that figure is 5.8 percent.¹⁵

Cornerstone Research's Settlement Prediction Analysis

This research applies regression analysis to examine the relationships between settlement outcomes and certain security case characteristics. Regression analysis is employed to better understand and predict the total settlement amount, given the characteristics of a particular securities case. Regression analysis can also be applied to estimate the probabilities associated with reaching alternative settlement levels. It is also helpful in exploring hypothetical scenarios, including how the presence or absence of particular factors affects predicted settlement amounts.

Determinants of Settlement Outcomes

Based on the research sample of post-Reform Act cases that settled through December 2019, the factors that were important determinants of settlement amounts included the following:

- “Simplified tiered damages”
- Maximum Dollar Loss (MDL)—market capitalization change from its peak to post-disclosure value
- Most recently reported total assets of the issuer defendant firm
- A measure of how long the issuer defendant has been a public company
- Number of entries on the lead case docket
- The year in which the settlement occurred
- Whether there were accounting allegations related to the alleged class period
- Whether there was a corresponding SEC action against the issuer, other defendants, or related parties
- Whether there was a criminal indictment/charge against the issuer, other defendants, or related parties related to similar allegations in the complaint

- Whether an outside auditor or underwriter was named as a codefendant
- Whether Section 11 and/or Section 12(a) claims were alleged in addition to Rule 10b-5 claims
- Whether the issuer defendant was distressed
- Whether a public pension was a lead plaintiff
- Whether the plaintiffs alleged that securities other than common stock were damaged

Regression analyses show that settlements were higher when “simplified tiered damages,” MDL, issuer defendant asset size, the length of time the company has been public, or the number of docket entries was larger, or when Section 11 and/or Section 12(a) claims were alleged in addition to Rule 10b-5 claims.

Settlements were also higher in cases involving financial restatements, a corresponding SEC action, a public pension involved as lead plaintiff, a third party such as an outside auditor or underwriter that was named as a codefendant, or securities other than common stock that were alleged to be damaged.

Settlements were lower if the settlement occurred in 2012 or later, or if the issuer was distressed.

More than 70 percent of the variation in settlement amounts can be explained by the factors discussed above.

Research Sample

- The database used in this report contains cases alleging fraudulent inflation in the price of a corporation's common stock (i.e., excluding cases with alleged classes of only bondholders, preferred stockholders, etc., and excluding cases alleging fraudulent depression in price and M&A cases).
- The sample is limited to cases alleging Rule 10b-5, Section 11, and/or Section 12(a)(2) claims brought by purchasers of a corporation's common stock. These criteria are imposed to ensure data availability and to provide a relatively homogeneous set of cases in terms of the nature of the allegations.
- The current sample includes 1,849 securities class actions filed after passage of the Reform Act (1995) and settled from 1996 through 2019. These settlements are identified based on a review of case activity collected by Securities Class Action Services LLC (SCAS).¹⁶
- The designated settlement year, for purposes of this report, corresponds to the year in which the hearing to approve the settlement was held.¹⁷ Cases involving multiple settlements are reflected in the year of the most recent partial settlement, provided certain conditions are met.¹⁸

Data Sources

In addition to SCAS, data sources include Dow Jones Factiva, Bloomberg, the Center for Research in Security Prices (CRSP) at University of Chicago Booth School of Business, Standard & Poor's Compustat, Refinitiv Eikon, court filings and dockets, SEC registrant filings, SEC litigation releases and administrative proceedings, LexisNexis, SSLA, Securities Class Action Clearinghouse (SCAC), and public press.

Endnotes

- ¹ See, e.g., “Where Have All the Public Companies Gone?,” *Bloomberg Opinion*, April 9, 2018.
- ² See Stephen J. Choi, Jessica Erickson, and Adam C. Pritchard, “Risk and Reward: The Securities Fraud Class Action Lottery,” U.S. Chamber Institute for Legal Reform, February 2019.
- ³ See *Securities Class Action Filings—2019 Year in Review*, Cornerstone Research (2020).
- ⁴ See Charles Silver and Sam Dinkin, “Incentivizing Institutional Investors to Serve as Lead Plaintiffs in Securities Fraud Class Actions,” *DePaul Law Review* 57, no. 2 (2008): 471–508.
- ⁵ See Stephen J. Choi, Jessica Erickson, and Adam C. Pritchard, “Risk and Reward: The Securities Fraud Class Action Lottery,” U.S. Chamber Institute for Legal Reform, February 2019.
- ⁶ The “simplified tiered damages” approach used for purposes of this settlement research does not examine the mix of information associated with the specific dates listed in the plan of allocation, but simply applies the stock price movements on those dates to an estimate of the “true value” of the stock during the alleged class period (or “value line”). This proxy for damages utilizes an estimate of the number of shares damaged based on reported trading volume and the number of shares outstanding. Specifically, reported trading volume is adjusted using volume reduction assumptions based on the exchange on which the issuer defendant’s common stock is listed. No adjustments are made to the underlying float for institutional holdings, insider trades, or short-selling activity during the alleged class period. Because of these and other simplifying assumptions, the damages measures used in settlement outcome modeling may be overstated relative to damages estimates developed in conjunction with case-specific economic analysis.
- ⁷ See Laarni T. Bulan, Ellen M. Ryan, and Laura E. Simmons, *Estimating Damages in Settlement Outcome Modeling*, Cornerstone Research (2017).
- ⁸ The statutory purchase price is the lesser of the security offering price or the security purchase price. Prior to the first complaint filing date, the statutory sales price is the price at which the security was sold. After the first complaint filing date, the statutory sales price is the greater of the security sales price or the security price on the first complaint filing date. Similar to “simplified tiered damages,” the estimation of “simplified statutory damages” makes no adjustments to the underlying float for institutional holdings, insider trades, or short-selling activity. Shares subject to a lock-up period are not added to the float for purposes of this calculation.
- ⁹ The three categories of accounting issues analyzed in Figure 8 of this report are: (1) GAAP violations; (2) restatements—cases involving a restatement (or announcement of a restatement) of financial statements; and (3) accounting irregularities—cases in which the defendant has reported the occurrence of accounting irregularities (intentional misstatements or omissions) in its financial statements.
- ¹⁰ See *Accounting Class Action Filings and Settlements—2018 Review and Analysis*, Cornerstone Research (2019). Update forthcoming in March 2020.
- ¹¹ It could be that the merits in such cases are stronger, or simply that the presence of a corresponding SEC action provides plaintiffs with increased leverage when negotiating a settlement. For purposes of this research, an SEC action is evidenced by the presence of a litigation release or an administrative proceeding posted on www.sec.gov involving the issuer defendant or other named defendants with allegations similar to those in the underlying class action complaint.
- ¹² See, e.g., Lynn A. Baker, Michael A. Perino, and Charles Silver, “Setting Attorneys’ Fees in Securities Class Actions: An Empirical Assessment,” *Vanderbilt Law Review* 66, no. 6 (2013): 1677–1718.
- ¹³ Docket entries reflect the number of entries on the court docket for events in the litigation and have been used in prior research as a proxy for the amount of plaintiff attorney effort involved in resolving securities cases. See Laura Simmons, “The Importance of Merit-Based Factors in the Resolution of 10b-5 Litigation,” University of North Carolina at Chapel Hill Doctoral Dissertation, 1996; Michael A. Perino, “Institutional Activism through Litigation: An Empirical Analysis of Public Pension Fund Participation in Securities Class Actions,” St. John’s Legal Studies Research Paper No. 06-0055, 2006.
- ¹⁴ Stanford Securities Litigation Analytics (SSLA) tracks and collects data on private, shareholder securities litigation and public enforcements brought by the SEC and the U.S. Department of Justice. The SSLA dataset includes all traditional class actions, SEC actions, and DOJ criminal actions filed since 2000. Available on a subscription basis at <https://sla.law.stanford.edu/>.
- ¹⁵ These results do not hold when looking at pharma cases with only ’33 Act claims from 2010 to 2019, which had a median settlement as a percentage of “simplified statutory damages” of 7.5 percent compared to 7.4 percent for the rest of the sample.
- ¹⁶ Available on a subscription basis. For further details see <https://www.issgovernance.com/securities-class-action-services/>.
- ¹⁷ Movements of partial settlements between years can cause differences in amounts reported for prior years from those presented in earlier reports.
- ¹⁸ This categorization is based on the timing of the settlement approval. If a new partial settlement equals or exceeds 50 percent of the then-current settlement fund amount, the entirety of the settlement amount is recategorized to reflect the settlement hearing date of the most recent partial settlement. If a subsequent partial settlement is less than 50 percent of the then-current total, the partial settlement is added to the total settlement amount and the settlement hearing date is left unchanged.

Appendices

Appendix 1: Settlement Percentiles

(Dollars in millions)

	Average	10th	25th	Median	75th	90th
2010	\$42.4	\$2.3	\$5.0	\$13.2	\$29.3	\$93.3
2011	\$23.8	\$2.1	\$3.0	\$6.5	\$20.5	\$47.5
2012	\$68.2	\$1.3	\$3.0	\$10.5	\$39.5	\$128.0
2013	\$79.4	\$2.1	\$3.3	\$7.1	\$24.3	\$90.5
2014	\$19.7	\$1.8	\$3.1	\$6.5	\$14.2	\$54.0
2015	\$42.5	\$1.4	\$2.3	\$7.0	\$17.5	\$101.4
2016	\$75.2	\$2.0	\$4.5	\$9.1	\$35.2	\$155.5
2017	\$19.0	\$1.6	\$2.7	\$5.2	\$15.6	\$36.0
2018	\$66.1	\$1.5	\$3.7	\$11.5	\$25.2	\$53.0
2019	\$27.4	\$1.5	\$5.6	\$11.5	\$20.0	\$50.0
1996–2019	\$45.5	\$1.8	\$3.7	\$8.9	\$22.3	\$74.4

Note: Settlement dollars are adjusted for inflation; 2019 dollar equivalent figures are used.

Appendix 2: Select Industry Sectors

2010–2019

(Dollars in millions)

Industry	Number of Settlements	Median Settlement	Median “Simplified Tiered Damages”	Median Settlement as a Percentage of “Simplified Tiered Damages”
Financial	103	\$19.8	\$472.5	4.7%
Technology	102	\$8.7	\$212.2	5.3%
Pharmaceuticals	91	\$8.6	\$237.0	3.7%
Retail	37	\$9.1	\$211.7	3.9%
Telecommunications	34	\$9.6	\$270.8	4.4%
Healthcare	15	\$8.5	\$132.8	6.4%

Note: Settlement dollars and “simplified tiered damages” are adjusted for inflation; 2019 dollar equivalent figures are used. “Simplified tiered damages” are calculated only for cases involving Rule 10b-5 claims.

Appendices (continued)

Appendix 3: Settlements by Federal Circuit Court

2010–2019

(Dollars in millions)

Circuit	Number of Settlements	Median Settlement	Median Settlement as a Percentage of "Simplified Tiered Damages"
First	22	\$8.5	3.3%
Second	180	\$10.2	4.8%
Third	49	\$8.6	5.0%
Fourth	27	\$14.5	3.6%
Fifth	34	\$9.9	4.5%
Sixth	29	\$13.2	7.3%
Seventh	39	\$11.3	4.4%
Eighth	13	\$13.8	6.1%
Ninth	189	\$8.0	4.9%
Tenth	16	\$6.7	6.0%
Eleventh	35	\$6.3	5.2%
DC	3	\$29.5	1.9%

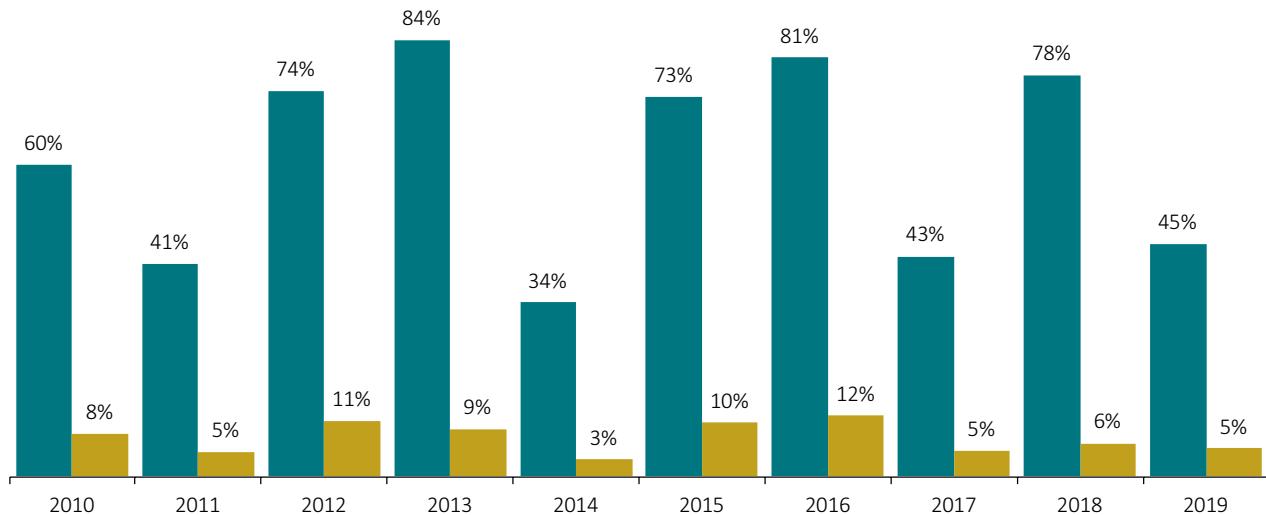
Note: Settlement dollars are adjusted for inflation; 2019 dollar equivalent figures are used. Settlements as a percentage of "simplified tiered damages" are calculated only for cases alleging Rule 10b-5 claims.

Appendix 4: Mega Settlements

2010–2019

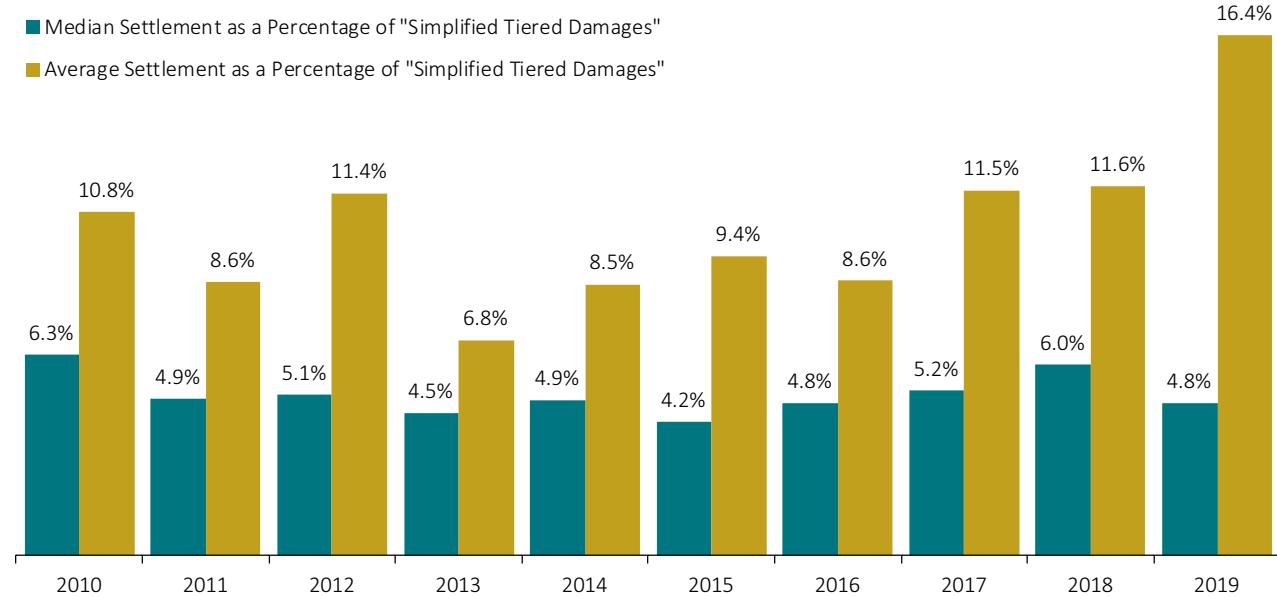
■ Total Mega Settlement Dollars as a Percentage of All Settlement Dollars

■ Number of Mega Settlements as a Percentage of All Settlements



Appendices (continued)

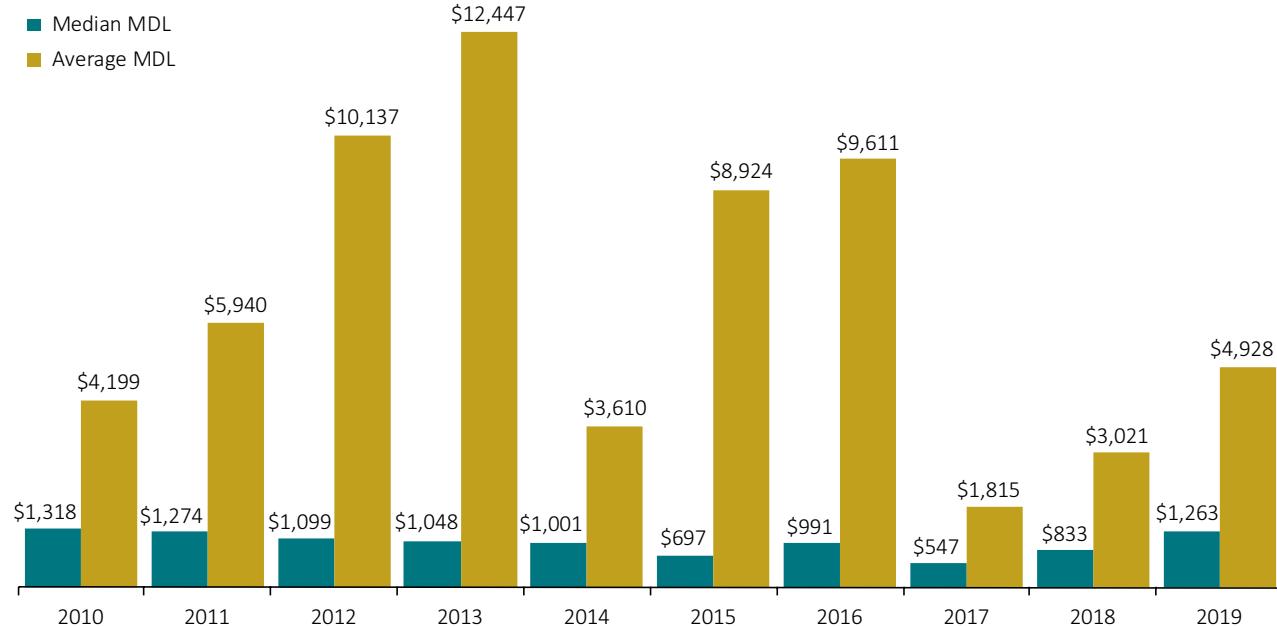
**Appendix 5: Median and Average Settlements as a Percentage of "Simplified Tiered Damages"
2010–2019**



Note: "Simplified tiered damages" are calculated only for cases alleging Rule 10b-5 claims.

**Appendix 6: Median and Average Maximum Dollar Loss (MDL)
2010–2019**

(Dollars in millions)



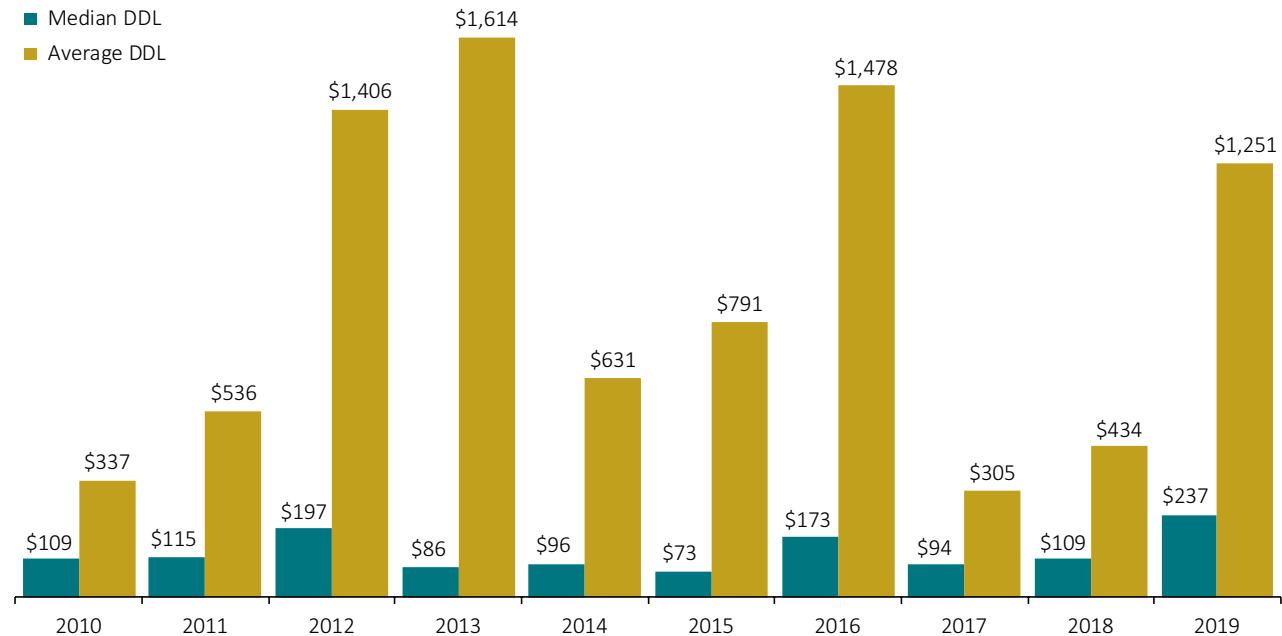
Note: MDL is adjusted for inflation based on class period end dates. MDL is the dollar value change in the defendant firm's market capitalization from the trading day with the highest market capitalization during the class period to the trading day immediately following the end of the class period.

Appendices (continued)

Appendix 7: Median and Average Disclosure Dollar Loss (DDL)

2010–2019

(Dollars in millions)

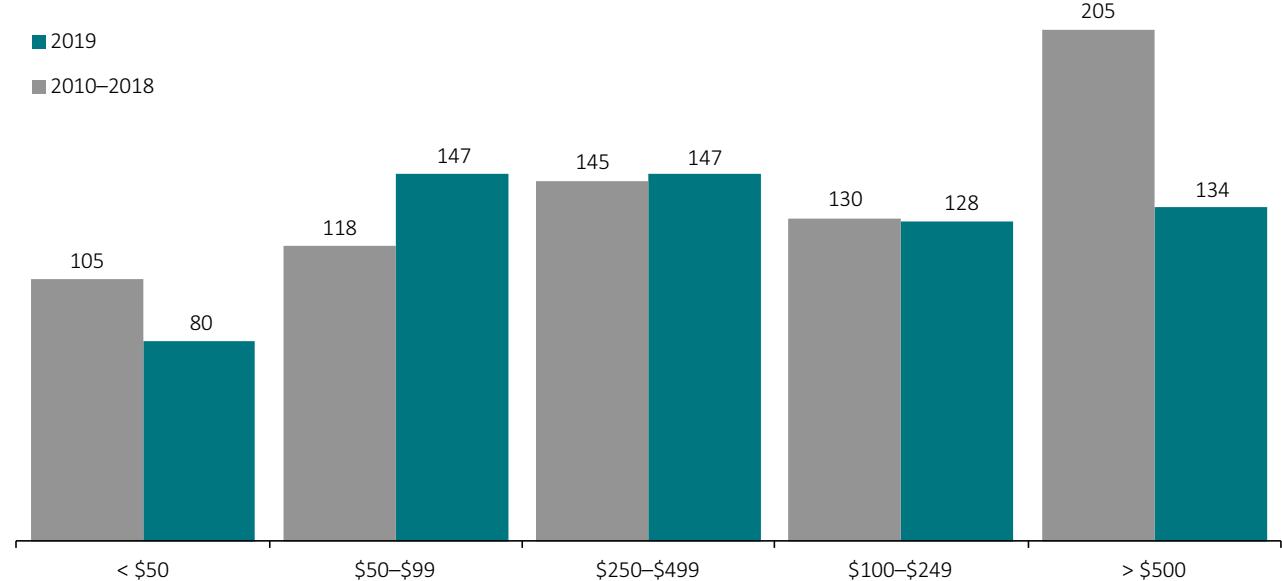


Note: DDL is adjusted for inflation based on class period end dates. DDL is the dollar value change in the defendant firm's market capitalization between the trading day immediately preceding the end of the class period and the trading day immediately following the end of the class period. This analysis excludes cases alleging '33 Act claims only.

Appendix 8: Median Docket Entries by "Simplified Tiered Damages" Range

2010–2019

(Dollars in millions)



Note: "Simplified tiered damages" are calculated only for cases alleging Rule 10b-5 claims.

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Laarni Bulan is a principal in Cornerstone Research's Boston office, where she specializes in finance. Her work has focused on securities damages and class certification issues, insider trading, merger valuation, risk management, market manipulation and trading behavior, and real estate markets. She has also consulted on cases related to financial institutions and the credit crisis, municipal bond mutual funds, asset-backed commercial paper conduits, credit default swaps, foreign exchange, and securities clearing and settlement.

Dr. Bulan has published several academic articles in peer-reviewed journals. Her research covers topics in dividend policy, capital structure, executive compensation, corporate governance, and real options. Prior to joining Cornerstone Research, Dr. Bulan had a joint appointment at Brandeis University as an assistant professor of finance in its International Business School and in the economics department.

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Dr. Simmons's research on pre- and post-Reform Act securities litigation settlements has been published in a number of reports and is frequently cited in the public press and legal journals. She has spoken at various conferences and appeared as a guest on CNBC addressing the topic of securities case settlements. She has also published in academic journals, including research focusing on the intersection of accounting and litigation. Dr. Simmons was previously an accounting faculty member at the Mason School of Business at the College of William & Mary. From 1986 to 1991, she was an accountant with Price Waterhouse.

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